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10/780,570	02/19/2004	Kiichi Ueyanagi	118764	1692

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EXAMINER

KAPADIA, VARSHA A

ART UNIT

PAPER NUMBER

2651

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/780,570

Applicant(s)

UEYANAGI, KIICHI

Examiner

Varsha A. Kapadia

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-14, 16 and 18-28 is/are rejected.
- 7) ☒ Claim(s) 5, 15, 17, 27 and 29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
- 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **Information Disclosure**

The information disclosure statement (IDS) submitted on 7/13/04 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### **Priority Papers**

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### **Rejection Under 35 U.S.C. 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6- 9, 13-14, 18-24 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Kasiraj et al.

With regards to claim1, Kasiraj et al discloses a heat-assisted magnetic recording head (see figs. 2A-5B and disclosure thereof), comprising:

A thin film magnetic transducer having a pair of yoke and generating magnetic field in a magnetic gap between two magnetic poles at the end of yoke (see elements P1, P2 and Y in figs. 2A-2B and 5A-5B, disclosure thereof and abstract); a heater placed in the vicinity of the magnetic gap (See element 20 and 20' in the drawings and disclosure thereof); a part of the recording medium is heated by the heater to reduce a magnetic-coercive force of the part of the medium as recited in the claim (see abstract and col.4 lines 1-19).

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With regards to claim 2, Kasiraj et al discloses that the heater includes a conductor placed at the gap and electrically connected to the poles (see element 20 in the drawings disclosure thereof and col.6 lines 6-20).

With regards to claims 3-4, see Kasiraj et al on col.5 lines 1-14.

With regards to claim 6, Curie temperature of the two poles is higher than that of the yokes is considered inherently disclosed by Kasiraj et al since heating element is in the close vicinity of the poles.

With regards to claim 7-8, Kasiraj discloses that the yokes of the transducer are electrically insulated (see the paragraph bridging cols. 4 and 5).

With regards to claim 9, Kasiraj et al discloses that the yoke is made of low electric resistance material (See col.6 lines 7-9).

With regards to claim 13, the limitations recited in claim 13 are similar to the limitations recited in claim 1, therefore the rejection applied to claim 1 above in the office action is herein repeated for the same reasons. Claim 13, further recites a scanning unit that scans the heat assisted recording head on the medium. Kasiraj et al discloses such in col.3 lines 37-56).

With regards to claims 14,18-21,23,and 26, Kasiraj et al discloses the heater including conductor placed at the magnetic gap and electrically connected to two poles, the conductor applying an electric current to the heater through the yoke to generate heat as claimed (see col.6 lines 6-20, element 20, P1-P2 and Y in the drawing and disclosure thereof).

With regards to claim 22, Kasiraj et al discloses a dielectric spacer as claimed (see col.7 lines 21-25).

With regards to claim 24, see Kasiraj et al on col.6 lines 4-10.

### **Rejection Under 35 U.S.C. 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8,10 12 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasiraj et al (6,493,183) in view of Garfunkel et al (6,325,947).

With regards to claim 10, Kasiraj et al discloses the invention as described above in this office action, but fails to further specify that the yoke is made of stacked thin films.

However, Garfunkel et al disclose such, see col.1 lines 9-18.

It would have been obvious to one of ordinary skill in the art at the time this invention was made to modify the recording head structure disclosed by Kasiraj et al with the above teachings from Garfunkel et al in order to provide head having yoke made of stacked thin film to increase the efficiency while maintaining a low profile, as taught by Garfunkel et al.

With regards to claims 12 and 25, Kasiraj et al discloses the invention as described above in this office action, but fails to further specify that the magnetic

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head includes a third pole. Garfunkel et al further discloses a third pole as claimed (see fig. 4A elements 60-61 and 68 and disclosure thereof). Garfunkel et al is relied upon for the same reasons as indicated above in this office action.

With regards to claim 8, Kasiraj et al discloses the invention as described above in this office action, but fails to further specify that the insulator is made of ferrite. Garfunkel et al further shows that the insulator in the yoke is made of ferrite (see col.6 line 52-65).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to modify the recording head structure disclosed by Kasiraj et al with the above teachings from Garfunkel et al in order to provide an insulation made of ferrite, since ferrite is well known and widely used insulator and no unexpected results are to occur, hence to provide an alternate insulating material, as taught by Garfunkel et al.

Claims 11, 16 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasiraj et al (6,493,183) in view of Kimoto et al (4,520,409).

With regards to claim 11, Kasiraj et al discloses the invention as described above in this office action, but fails to further specify that the yokes include pair of electrodes.

However, Kimoto et al disclose such, see figs. 3 and 5 elements 10 and disclosure thereof.

It would have been obvious to one of ordinary skill in the art at the time this invention was made to modify the recording head structure disclosed by Kasiraj et al with the above teachings from Kimoto et al in order to provide head having yoke having a pair of electrodes in order to properly control the heat applied to the heating elements via electrical wire to maintain the desired Curie temperature of the recording medium, as taught by Kimoto et al.

With regards to claims 16 and 28 Kasiraj et al discloses the invention as described above in this office action but fails to further show that the electrical current applied to the heater in a pulse form. Kimoto however, discloses such (see fig. 4 elements 5 and 14 and disclosure thereof). Kimoto et al is relied upon for the same reasons indicated above in this office action.

### **Allowable Subject Matter**

Claims 5, 15, 27, 17 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 5 differs from the prior art of record by further specifying that the electrical resistance of at least one of the two magnetic poles is lower than that of the two poles.

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Claims 15 and 27 differs from the prior art of record by further specifying that the electrical current applied to the heater is increased as the head scanned from the inner part to the outer part along the radius of the magnetic recording medium.

Claims 17 and 29 differs from the prior art of record by further specifying that the Pulse width of the electric current is narrower than that of a current generating the magnetic field.

### **Prior Art Cited**

Reference to Hsu et al (6,671,127) cited as of interest.

Reference to Ueyanagi et al (2001/0040868) is cited as of interest.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Varsha A. Kapadia whose telephone number is (571)272-7557.

The examiner can normally be reached on Mon Tue and Thurs. from 6:30 AM to 2:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571 272 7843. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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